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EXAMINER

BODDIE, WILLIAM

ART UNIT

PAPER NUMBER

2629

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/693,958	Applicant(s) NAKANISHI, HAYATO	
	Examiner William Boddie	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. In an amendment dated, August 16th, 2006, the Applicant amended claims 1-3 and 5-6. Currently claims 1-7 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 2 is objected to because of the following informalities: the limitation reciting a set of third switches is still present in line 11 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enami et al. (US 5,892,493) in view of Plus et al. (US 5,113,134).

With respect to claim 1, Enami discloses, an electro-optical device (fig. 1), comprising:

- a plurality of scanning lines (G1-Gn in fig. 1);
- a plurality of data lines (d1A-dnD in fig. 1);

a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;

first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the supply of a precharge signal ($\pm V_1$ in fig. 1) from a precharge signal supply line (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines (clear from fig. 1), the precharge signal being less than a data voltage (col. 8, lines 24-33).

Enami does not expressly disclose a second set of switches for output of a detection signal, or a data line selection circuit that sets the state of the switches.

Plus discloses, second switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least one data line to test lines; and

a data line selection circuit (19) to set the on or off state of switches (17) that control the output of the detection signal (col. 3, lines 5-11).

Plus and Enami are analogous art because they are both from the same field of endeavor namely driving control circuitry for liquid crystal displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the display device of Enami.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Therefore it would have been obvious to combine Plus with Enami for the benefit of integrated testing circuitry to obtain the invention as specified in claim 1.

With respect to claim 2, Enami discloses, an electro-optical device (fig. 1), comprising:

- a plurality of scanning lines (G1-Gn in fig. 1);
- a plurality of data lines (d1A-dnD in fig. 1);
- a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;
- first switches (42 in fig. 1) to control the supply of precharge signals ($\pm V_1$ in fig. 1) from input signal lines (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines to the at least one data line, the precharge signal being less than a data voltage (col. 8, lines 24-33); and
- a data line selection circuit to set the on or off state of the first switches (44 in fig. 1).

Enami does not expressly disclose, a set of switches for controlling the output of a test signal, or a data line selection circuit that sets the state of the switches.

Plus discloses, a set of switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least one data line to test lines; and

a data line selection circuit (19) to set the on or off state of switches (17) that control the output of the detection signal (col. 3, lines 5-11; also note the orientation of the monitoring circuitry, opposite the data line scanner. This orientation is identical to the precharge circuitry of Enami).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the precharge circuitry of Enami.

Furthermore the placement of the circuitry in each piece of art would suggest to meld the two pieces of circuitry, detection and precharge, into a single piece of circuitry.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Therefore it would have been obvious to combine Plus with Enami for the benefit of integrated testing circuitry to obtain the invention as specified in claim 2.

With respect to claim 3, Enami discloses, an electro-optical device (fig. 1), comprising:

- a plurality of scanning lines (G1-Gn in fig. 1);
- a plurality of data lines (d1A-dnD in fig. 1);
- a plurality of electro-optical elements (18 in fig. 1) provided to correspond to intersections of the plurality of scanning lines and the plurality of data lines;
- at least two precharge lines (lines output from switch 46 in fig. 1; there is clearly one for each data line) to supply precharge signals ($\pm V_1$ in fig. 3) to at least two data lines of the plurality of data lines;
- first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the output of the precharge signal ($\pm V_1$ in fig. 1) from the at least two precharge lines to the at least two data lines (clear from fig. 1), each precharge signal being less than a data voltage (col. 8, lines 24-33).

Enami does not expressly disclose a second set of switches for output of a detection signal.

Plus discloses, second switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least two data lines of the plurality of data lines to test lines.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the display device of Enami.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Therefore it would have been obvious to combine Plus with Enami for the benefit of integrated testing circuitry to obtain the invention as specified in claim 3.

With respect to claim 4, Enami and Plus disclose, an electro-optical device according to claim 3 (see above).

Plus further discloses, a data line selection circuit (19) to control the on or off state of switches (17) sequentially (col. 3, lines 5-11).

With respect to claim 5, Enami discloses, a method of driving an electro-optical device (col. 1, lines 7-9), including:

- a plurality of scanning lines (G1-Gn in fig. 1);
- a plurality of data lines wired to intersect the scanning lines (d1A-dnD in fig. 1);
- electronic circuits provided to correspond to intersections of the scanning lines and the data lines (18, 24 in fig. 1);

first switches (42 in fig. 1)) that are part of a precharge circuit (42-46 in fig. 1) to control the supply of a precharge signal ($\pm V_1$ in fig. 1) from a precharge signal supply line (output line from switch 46 in fig. 1) connected to at least one data line of the plurality of data lines (clear from fig. 1), the precharge signal being less than a data voltage (col. 8, lines 24-33),

supplying a precharge signal from a precharge signal supply line to the data lines through the first switches when one of the plurality of scanning lines is selected (col. 9, lines 43-52); and

supplying data signals to electronic circuits connected to the selected scanning line through the data lines (col. 8, lines 48-60).

Enami does not expressly disclose a second set of switches for output of a detection signal, or outputting data signals supplied to the data lines as detection signals to test lines.

Plus discloses, second switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least one data line to test lines; and

a data line selection circuit (19) to set the on or off state of switches (17) that control the output of the detection signal (col. 3, lines 5-11).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the display device of Enami.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Therefore it would have been obvious to combine Plus with Enami for the benefit of integrated testing circuitry to obtain the invention as specified in claim 5.

With respect to claim 6, Enami discloses, a method of driving an electro-optical device (col. 1, lines 7-9), including:

- a plurality of scanning lines (G1-Gn in fig. 1);
- a plurality of data lines wired to intersect the scanning lines (d1A-dnD in fig. 1);
- electronic circuits provided to correspond to intersections of the scanning lines and the data lines (18, 24 in fig. 1);

- at least two precharge lines (lines output from switch 46 in fig. 1; there is clearly one for each data line) to supply precharge signals ($\pm V_1$ in fig. 1) to at least two data lines of the plurality of data lines;

- first switches (42 in fig. 1) that are part of a precharge circuit (42-46 in fig. 1) to control the output of the precharge signal ($\pm V_1$ in fig. 3) from the at least two precharge lines to the at least two data lines (clear from fig. 1), each precharge signal being less than a data voltage (col. 8, lines 24-33),

- supplying a precharge signal from a precharge signal supply line to the data lines through the first switches when one of the plurality of scanning lines is selected (col. 9, lines 43-52); and

- supplying data signals to electronic circuits connected to the selected scanning line through the data lines (col. 8, lines 48-60).

Enami does not expressly disclose a second set of switches for output of a detection signal, or outputting data signals supplied to the data lines as detection signals to test lines.

Plus discloses, second switches (17) connected to at least one data line (12) of a plurality of data lines to control the output of a detection signal (col. 3, lines 12-33) from the at least one data line to test lines; and

a data line selection circuit (19) to set the on or off state of switches (17) that control the output of the detection signal (col. 3, lines 5-11).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of Plus in the display device of Enami.

The motivation for doing so would have been a reliable, fast and inexpensive circuit to test for circuit flaws (Plus; col. 1, lines 37-46).

Therefore it would have been obvious to combine Plus with Enami for the benefit of integrated testing circuitry to obtain the invention as specified in claim 6.

With respect to claim 7, Enami and Plus disclose the electro-optical device according to claim 1 (see above).

Plus further discloses, an electronic apparatus (col. 1, lines 8-9).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb
10/24/06

AMR A. AWAD
SUPERVISORY PATENT EXAMINER
